LOVE OF SCIENCE PERVERTED.

VIVISECTION.

BY

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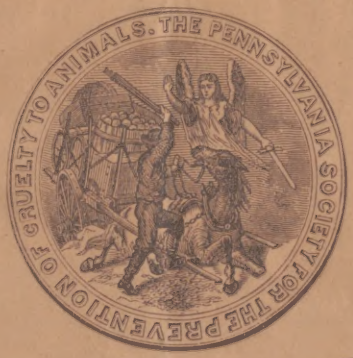

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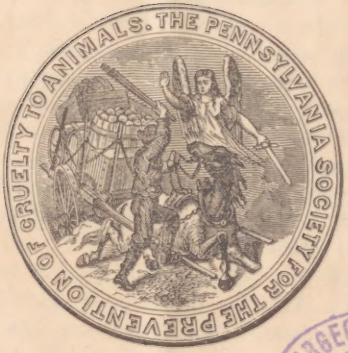

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It was maintained, prior to the age of Celsus, that in order to acquire an accurate knowledge of the human frame, it was necessary to inspect not only the internal structure of the dead, but to anatomize the living. Herophilus, a native of Carthage, born in the reign of Ptolemy Soter, and also Erasistratus, were stigmatized by some and eulogized by others, for having dissected criminals taken from the public prisons, and, while they were yet alive, inspected the position, color, figure, magnitude of those parts which had before been concealed. It was strongly argued, that the knowledge thus acquired was absolutely necessary to those who would discriminate between a healthy and an unsound state of the internal parts of the body, and apply the proper remedy to the parts diseased; that the practice might be taxed with cruelty, but it was just that a few wicked men should expiate their crimes, and compensate the wrongs they had done to society, by suffering for the benefit of future generations.—Celsi, *Opera, p.* 7, *Patavii*, 1750.

The natural and instinctive abhorrence which man feels for the dissection of his own species, even when dead, would cause him to revolt from its practice on the living. Accordingly, it does not appear ever to have come into extensive use; though a modern philosopher, M. de Maupertuis, has proved that it may not yet be without its advocates. In his letter to the King of Prussia on the advancement of science, he speaks "of the uses to be made of the punishment of criminals;" and says, "I should gladly see the lives of criminals made subservient to operations of this nature, even when there were but little hopes of success; nay, I should even think that we ought to hazard them without scruple, even for improvements of more remote utility. Dis-

coveries might be made with regard to the wonderful union of the soul and body, if we had the courage to look for the bonds of this union in the brains of a living man. Let us not be shocked at the air of cruelty which this carries with it: the life of a man is nothing when put in comparison with the whole human race; and the life of a criminal is less than nothing."

How would this sage have been pleased, had he been selected as the favored subject for the experiment which was to show the "wonderful union" of body and soul? The experiment, to have ample justice, should by all means be made on a philosopher who felt an interest in the problem; for if made on one of the οἱ πολλοι, the many, it might prove inconclusive. But such a sage as Maupertuis could reason on the different steps of the process; explain all his sensations; indicate by expressive signs when "the bonds" were tightened or relaxed; and if he felt a little pain, and began to tremble at dissolution, could draw consolation from the reflection that the life of a man is nothing, and the life even of a philosopher "less than nothing," in comparison of the pleasure that would be enjoyed by the whole human race in having the great mystery revealed!

Some of the contemporaries of Celsus, however, destitute of the light of the *Illuminati*, reasoned in a different strain. They reprobated the practice of anatomizing living men as cruel and unnecessary, and altogether unprofitable; they contended that the medical art has for its object the preservation, not the destruction of life; that the parts of a subject dissected alive, no longer retain their original function or appearance; that as, even when the frame suffers no violence, it undergoes great changes from fear, want, lassitude, and other affections, much greater must be the changes caused by painful incisions; and, in short, that nothing can be more foolish than to suppose that the viscera, or members of a dying man, or of one who has just expired, are similar to those of a man in health. The dissection of some parts is attended by the immediate death of the subject, so that the dissector, after all, contemplates the parts not of a living but of a dead man, and he may be said to act cruelly the part of a cut-throat, rather than to inspect the intestines

in their natural state of vitality. Accidents often furnish opportunities of seeing all that properly can be seen in living subjects, as when a gladiator falls wounded in the arena, a soldier on the field of battle, or a traveller has his limbs bruised and fractured by robbers. A prudent physician will, in such cases, inspect or examine the injured parts, and in prosecuting the means of saving life, not of inflicting death, he may learn from offices of mercy what others attempt to know by acts of dire cruelty. Nay, the laceration even of dead bodies is unnecessary; for though not cruel, it is indecent.

Such, according to Celsus (pp. 11, 12), were the opinions of two opposite classes of medical men. He says the question was discussed with much acrimony, and that many volumes were written upon it. For himself he steers a middle course; being decided in his belief that the dissection of living bodies is cruel and superfluous; that of the dead necessary to all students of medicine; a conclusion, I presume, in which all well-instructed physicians and surgeons will agree, so far at least as the human subject is in question. With respect to the vivisection of animals there still exists no small difference.

Our great Sir Francis Bacon observes, that "for the passages and pores it is true which was anciently noted, that the more subtle of them appear not in anatomies, because they are shut and latent in dead bodies, though they be open and manifest in life, which being supposed, though the inhumanity of *anatomia vivorum* was by Celsus justly reproved, yet in regard of the great use of this observation, the inquiry needed not by him so lightly to have been relinquished altogether, or referred to the casual practices of surgery, but might have been well diverted upon dissection of beasts alive, which, notwithstanding the dissimilitude of their parts, may sufficiently satisfy this inquiry."—Vol. ii, p. 482.

The writer of these pages is not such an enemy to science, as to affirm that no animal should in any case be brought a living victim to her shrine. He admits that some useful discoveries, as those of the Lacteals, and of the circulation of the blood, have been made, or most clearly illustrated by

vivisection. When a great and valuable object is to be attained, some expense of pain and suffering must be allowed. The life of a human being is more to be prized than that of a brute, and if one can be saved by the death of the other, there can be no hesitation as to the latter. But what the friends of humanity may and do justly complain of, is not only a wanton sacrifice of life, but the infliction of cruel and lingering torment, for the gratification of a useless curiosity. When facts have been ascertained and established by men of acknowledged skill and merited reputation, wherefore is any sciolist to venture on a repetition of the experiments by which those facts have been demonstrated? Wherefore are boys, who have just commenced the study of anatomy, to make upon living creatures their incipient efforts in this difficult art? Is it not enough to attend to the instructions of their teachers, and to practice upon inanimate creatures? May they not rest assured that the knowledge of which they are in quest has been already gained, and can be imparted to them on much more certain grounds than they could ever lay for themselves? Or, should they be exhorted to repeat all that has been already done, with Asellius to dissect living dogs to ascertain the existence and functions of the Lacteals, and with Haller employ a "hammer and chisel" to open the skulls of goats and cats, to see if there be any motion in the brain corresponding to the respiration? Is this the way to train them for treating their future patients with tenderness?

Since writing the above, the following passages in LORD'S *Popular Physiology* struck the author as a farther illustration of the uncertainty of the conclusions drawn from the dissection of living animals.

Dr. Philip inferred that galvanic fluid and the nervous influence are the same, because he found them producing similar effects. "Now," says Lord, "if we consider this advanced as a strict logical proof, a fallacy is at once evident, though Dr. Philip has ingeniously kept it out of view, by making his syllogism an *enthymeme*, and placing the fallacy in the suppressed proposition. For his argument is this: Galvanism produces the same effects as the nervous influence sent from the brain; therefore galvanism *is* the

nervous influence. The suppressed proposition is: 'sameness of effects infers identity of cause.' And the fallacy of this we can demonstrate without leaving the ground Dr. Philip has chosen; for if he select the contraction of a muscle as the effect, we know it can be caused by pinching with the forceps the cut end of the nerve going to it, and it can also be caused by sending a galvanic shock through the nerve; but it is evident that pinching with the forceps is not therefore a galvanic shock. We may therefore safely conclude, that the nature of the nervous influence is unknown: we may therefore safely conjecture that it is likely to remain so; being like the vital principle, too recondite for the comprehension of our faculties in their present limited state." pp. 412–414.

It seldom happens, as we may learn from the preceding facts, that one set of experiments is found sufficient to satisfy the inquirer, or induce him to rest with confidence on the first result. A second set must be made to confirm or invalidate the first. After all, something has escaped observation; the conditions of the first experiment were not fulfilled in the second; objections are started which must be removed; different conclusions are drawn from the same premises; the animal selected for experiment, after its torture and death, is suspected to have been an "erroneous choice," and another must be procured:* a controversy springs up; different sides are taken by the old and the young, by the practiced anatomist and the bungling blockhead, whom nature designed to be a butcher and not a man of science. New modes of conducting the operation are contrived, and new varieties of torture inflicted. Sometimes the experiments are microscopical, and therefore "proverbially liable to error." Others again have no analogy to anything in the human frame, and, therefore, so far as human anatomy is concerned, altogether useless. Some are made without any

* Thus Asellius, having dissected a living dog, discovered the Lacteals. To trace the connection and uses of these vessels he dissected another, but to his surprise, could discern no appearance of them. He then remembered that the first dog had been dissected after a plentiful meal, and so it became necessary to dissect a third under the same conditions.

plausible object, for mere curiosity; and others with the ostensible design of advancing science. In either case, we too often find as little regard for the sufferings of animals, as if they were shrubs or vegetables, to be pruned and minced by the knife of the gardener; or blocks of marble, on which it would be meritorious to show with what dexterity some new aspirant to the fame of Haller could employ the "hammer and chisel." Dr. Elliotson informs us that Magendie, the most ruthless and truculent of vivisectors, in one of his barbarous experiments, began by "cutting out a large round piece from the back of a beautiful little puppy, as he would from an apple dumpling." And again, that he "cuts living animals here and there, with no definite object, but just to see what will happen!" The distressing shrieks, the agonizing tortures of the poor victim, are heard and seen with stoical apathy. In the false morality of empiricism, the end justifies the means; and for a prospective, imaginable, or possible good, myriads of enormous cruelties are perpetrated, as disgraceful to the name of science, as they must be criminal in the sight of that great Being, whose "tender mercies are over all his works."

In corroboration of these sentiments, let me add some just observations communicated by a friend, whose knowledge of anatomy and physiology entitles them to special consideration. "It often happens that the same vivisection gives different results to different experimentalists, and that after the deliberate butchery of hundreds of animals, no certain or useful fact is ascertained. Some light has been thrown on physiology by experiments on organs near the surface; but when the *ima penetralia* are laid open, accompanied, as such a process must be, by horror of mind and disarrangement of every natural function in the animal, the phenomena are no more truly indicative of physiological facts to the experimentalist, than of futurity to some aruspex; nay, such experiments often lead to gross misconceptions. Magendie, for example, the most cold-blooded and cruel of physiologists, conceives that the use of the *pancreas* is unknown, though from its structure and everything relating to it, it had for centuries been considered by able anatomists and physiologists analogous in all respects to a

salivary gland. His dissent he founded on this, that in animals *laid open* he could not observe that a liquid-like saliva flowed from it, but a viscid mucus, and that only in a very small quantity. Now consider what an accurate knowledge would be gained of the office of this gland, had the learned societies of Paris tied M. Magendie himself down on a table, laid him open, and dissected all clear, till they could fairly open the duodenum, and watch hour after hour the quantity of fluid which distilled from the mouth of his pancreatic duct. The learned bodies, I presume, would put little dependence on the proceeds of such an experiment. They would naturally conclude, that after such a shock, during so much torture, and the part being exposed in a way that nature never intended, it would be quite unphilosophical to expect that the gland would perform its office as it should do. Now this is a case of uncertainty that must attend all violent experiments on living animals; and therefore they should be discouraged *in toto*. They are cruel to an extreme that is little contemplated, and their results are of no practical, and very little speculative utility."

A professional gentleman, a surgeon and physician, who obtained his degree in the University of Edinburgh, and who has paid due attention to the subject under consideration, has kindly favored the author with the following communication. His name would stamp value on his opinions; but let the facts he imparts speak for themselves.

"That experiments on living animals may, under some circumstances be justifiable, I will not deny; but what is chiefly to be objected to is their unnecessary and wanton repetition. I believe too, that in very few instances will they lead to any valuable result. They are often found contradictory to each other, and lead to different conclusions.

"But what is most to be depreciated is the practise of teachers recommending to their pupils to repeat these experiments, and teaching them to harden their hearts, by familiarizing them to the cruelest mutilation and mangling of animals at their lectures, to show what can be perfectly understood by description, without any such exhibitions.

"During the first winter in which I attended Edinburgh University, and when I was a mere boy, I was a pupil of

Dr. Monro's anatomy class: and also of that of Mr. Fyfe, his demonstrator. The latter gave a course of demonstrations, or lectures, at seven o'clock in the evening, and on several occasions such exhibitions were made as those to which I have alluded. On one of these a living pig was tied down to the table, and to prevent its screaming from annoying the class, an incision was made into its throat, (*Anglice*, its throat was cut) and part of its wind-pipe removed: and nothing could exceed the delight of most of those present, on perceiving that when the lecturer closed the opening of the wind-pipe with his thumb, and thus permitted the air to resume its natural passage through the glottis, the animal screamed: while, by removing his thumb, it was again rendered voiceless. This could be perfectly understood without any such inhuman experiment. The pig's belly was then ripped open in its whole length, and then from side to side, so that the skin and muscles could be thrown in four flaps from the surface of the intestines which they had previously covered; and this for the purpose of showing that the intestines have a vermicular motion for pushing on their contents, a fact which one minute's explanation could render perfectly clear, and which can be seen at any time, by simply looking at the intestines of a sheep recently killed. I do not recollect particularly any other objects intended to be shown at this exhibition: but I have distinctly before my eyes the sufferings of the animal, as its intestines were cut out piece by piece, and cast on the lecture table, to show how long the vermicular or peristaltic motion might remain after their separation.

"On another occasion, a beautiful spaniel dog was fastened down to the table with strong cords bound tight round each leg: and for the purpose of securing his head, and preventing motion, a thick piece of whip cord had been passed (not without much violent resistance), from the back part of the mouth through the nostrils, so that one end came out through each: these were carried round the extremity of the table, and fastened so that the animal could not move in the slightest degree. The former experiments (if they are to be called such) were repeated, and various others besides. An opening was made into the chest on one side, to show

that the animal might live and breathe by the other; then both sides were opened, to show how long he might still breathe before he became insensible; then the openings were closed, to show that respiration would return, and the animal revive and again become sensible of his sufferings. The latter parts of the operation were done before the opening of the belly. The expression of torture, as the animal uncovered his ivory teeth, and tried to struggle as he felt every cut of the scalpel, was greater than any thing indicative of excruciating pain I ever witnessed before or since; but I believe the agony the creature must have suffered, by every attempt to move his head, from the cord cutting the septum of the nostrils, was greater even than that inflicted by the knife."

The kind author of this communication adds:—"Of the above facts I was an eye witness, and for the truth of them in every particular, I can conscientiously vouch. You can clothe them in proper language, as my recollection of them is noted in the first words that occur."

But they require no artificial decoration of style to expose their atrocity, and call down upon them the reprobation and abhorrence of every humane mind. It is disgraceful to the age, that students at the university of one of the most enlightened cities in the world, "mere boys," at that period of life when they are most susceptible of every impression, should be initiated into such scenes as have been described; and that teachers whom they have been taught to regard with respect and veneration, should recommend them to perpetrate such cruelties, under the specious idea that they are prosecuting science! Science indeed! *hoc prætexit nomine culpam.* Science! to mutilate poor animals, and subject them to such excruciating tortures as would shock a cannibal! The American savage who puts his enemy to death by all the torments he can devise, has the passion of revenge, at least, to plead in defence of his barbarity; but what shall be pleaded in extenuation of the passionless, cold-blooded, unrelenting cruelty of a vividissector's slaughter-house? Science! no; her name is dishonored and prostituted by being even mentioned in connection with scenes so abhorrent from her nature.

Another medical friend whose name would be creditable to these pages, has favored me with a letter on this subject. He says that he readily admits that much unnecessary cruelty has been perpetrated, both from the lingering torments which some experiments inflict, and also from the culpable profusion of animals which are sacrificed: at the same time he thinks that in some cases experiments on living animals are required, and that without such experiments our knowledge of the physiology of digestion, and of the circulation of the blood, would be far from being so well-founded as it actually is. "In the greater number of cases," says he, "vivisections are not so useful in making discoveries, as in proving discoveries suggested by other means; in other words, mere random experiments in quest of discoveries are both useless and culpable. Thus, the structure of the heart, the position and direction of the valves of the arteries and veins, were of themselves quite sufficient to guide the genius of Harvey to the discovery of the circulation; but this discovery once made, required what Bacon calls an *experimentum crucis*, and such a test was afforded by a few experiments on living animals. * * * * However, I fully allow that all random experiments ought to be severely censured; and he who experiments on living creatures, merely in the vague hope of observing something new, is guilty both of cruelty and folly. He acts like a fool who enters a laboratory, and begins to mix every kind of substance, in the hope of forming some new chemical compound. Vivisections in any case can be useful only when conducted by men of sense and humanity."

To these testimonies let me add that of Dr. J. L. Drummond, Professor of Anatomy and Physiology in the Belfast Academical Institution. In the eighteenth of his instructive and entertaining "*Letters to a Young Naturalist*," he deprecates the practice of vivisection with becoming indignation, and shows that it is seldom, if ever, in any sense beneficial. "Experiments of this description," says he, "are unhallowed in their nature, and they will almost always be unsatisfactory in their result to a rigid investigator of truth; for a conclusion can seldom be depended on, which is derived from observation of a mangled suffering creature,

bleeding under the dissecting knife. * * I can find no excuse for any man who will dissect living dogs, rip up their bellies, (or, as the softened phrase is, lay open their abdomen), cut out their stomach, or spleen, or kidneys, or perform other dreadful mutilations, merely to satisfy a feeling of curiosity; and still less do I think that he can be excused for recommending such a practice." p. 287.

Cruel experiments, made solely for the sake of gratifying curiosity, are justly reprobated by the learned Doctor, as are also the "horrible excesses" and "savage reckless enthusiasm" with which they are conducted by the French physiologists. "They torture animals innumerable, without end or aim, farther than *hoping* to get at something; like a child who breakes a watch in pieces, thinking to obtain thereby a knowledge of the reason why it ticks. Many hundred dogs have been dissected alive, to prove whether the stomach is active or passive in vomiting; but I would ask, when an animal is writhing in agony, struck with dismay and astonishment, with its belly opened and the bowels exposed to the atmosphere, are we to expect that in all the horrors of this situation, the stomach will exhibit itself, or perform its functions just as if nothing had happened? I cannot believe it; and if ten thousand such experiments were made, there still will and must be want of proof."

As skilful anatomists and physiologists are best qualified to give an opinion on this subject, I trust I shall be excused not only for the length of the preceding quotations, but for others yet to come. It cannot be said that their decisions are founded on ignorance, or on partial and limited information. Many of those who have studied physiology most profoundly, and devoted their whole lives to its pursuit, are the most determined in their condemnation of vivisection. No one who has but glanced into Dr. Elliotson's work on physiology, will deny that his decision is based on a most extensive experimental knowledge, and entitled to the greatest respect and most implicit confidence. After noticing some experiments of a French dissector on living animals, so atrociously wicked that they cannot be described in this place, he says, "I do not think a physiologist would have ventured to divulge such a disgusting experiment in this coun-

try, and I cannot refrain from expressing my horror at the amount of torture which Dr. Brachet inflicted upon so many unoffending brutes. Nearly or quite two hundred must have suffered under his hands. I hardly think knowledge is worth having at such a purchase; or that it was ordained that we should obtain knowledge by cruelty. I care nothing for killing a brute outright, without pain; it is then but as before it was born, feels no loss, and escapes all further chance of suffering. Vivisection may be justifiable in some instances; but before an inquirer commences an experiment of torture, he ought to be satisfied of its absolute necessity; that the investigation is important, and the means indispensable; and also, that he is master of the existing knowledge on the subject, and qualified to operate and to philosophise on the results. He should proceed to the task with the deepest feelings of regret. I do not wish to make a parade of feeling; but to torture animals unnecessarily is a most cowardly and cold-blooded act, and in my opinion one of the utmost depravity and sin. A course of experimental physiology, in which brutes are agonized to exhibit facts already established, is a disgrace to the country which permits it." *Human Physiology*, p. 449, note.

The following is an instance of the ruthless barbarity of French physiologists:—"I inspired," says Dr. Brachet, "a dog with the greatest aversion for me, by plaguing and inflicting some pain or other upon it as often as I saw it. When this feeling was carried to its height, so that the animal became furious as soon as it saw or heard me, I put out its eyes. I could then appear before it without its manifesting any aversion. I spoke, and immediately its barkings and furious movements proved the passion which animated it. I destroyed the drum of its ears, and disorganized the internal ear as much as I could; when an intense inflammation which was excited had rendered it deaf, I filled up its ears with wax. It could no longer hear at all. Then I went to its side, spoke aloud, and even caressed it, without its falling into a rage; it seemed even sensible to my caresses."

On this experiment, foolish and unmeaning as it was wicked, and which was repeated with the same result, Dr.

Elliotson animadverts with laudable indignation. "What," he asks, "was all this to prove? Simply, that if one brute has an aversion to another, it does not feel nor show that aversion, when it has no means of knowing that the other brute is present. If he had stood near the dog on the other side of a wall, he might have equally proved what common sense required not to be proved. After all, I do not understand how the poor dog did not scent him. I blush for human nature in detailing this experiment, and shall finish it by informing my readers that the Memoir containing this and all the other horrors, obtained the physiological prize from the French Institute in 1826."—*Human Physiology*. note, pp. 449, 450, (fifth edit.)

Dr. Elliotson says that the inquirer, in making a necessary experiment, should "proceed to the task with the deepest feelings of regret;" a sentiment with which every man of the least humanity must accord. But the French physiologists seem actually to take a pride in inventing new torments, and to feel pleasure in contemplating the agonies into which they throw poor animals by their diabolical cruelty. "It is droll," says Magendie, "to see animals skip and jump about of their own accord, after you have taken out all their brains a little above the optic tubercles:" and as to new-born kittens, he says, "they tumble over in all directions, and walk so nimbly, if you cut out their hemispheres, that it is quite astonishing."

It would be an easy task to fill a volume with an account of these atrocities, perpetrated by this ruthless dissector. But wherefore weary the reader by the disgusting detail?

> Quid memorem infandas cædes? quid facta tyranni
> Effera?—VIRG. viii. 483.

The Anatomical Schools of Germany seem ambitious of rivaling the French in this department, as we learn from the following passage in "Impressions of a Tour," published in *Blackwood's Magazine* for January, 1838, p. 96. "The last thing I noticed about Bonn was the advertisement of a medical professor, affixed to the gate, and announcing experiments on the living animal, as a part of his regular course. In this there was something unblushing and dis-

gusting; but a professor in the German colleges, unless he be opulent, must propose any thing, and do any thing, to stimulate curiosity, and tempt an audience." The American schools also promise to match the French and German, if we may judge from a passage in HARLAM'S *Medical and Physical Researches*, Phil. 1835, pp. 648, 649, in which he adopts the same fallacy as the *Medico-Chirurgical Review*, and speaks with surprise that man should "hesitate in sacrificing a few insignificant animals for the amelioration and elevation of the condition of his species." But he makes no difference between the extinction of life by an instantaneous shock, and the protracted horrors of dying by inches under the knife and the forceps of an anatomist! Again then it must be repeated, that *it is not the death, but the manner of the death* of a few insignificant animals, that is the subject of the moralist's complaint: the lingering, merciless process, by which the condition of his species is neither meliorated nor raised, but deteriorated and degraded. The Dublin schools of surgery have acquired a just and well-merited celebrity, which may they long continue to merit and enjoy; but assuredly it was not by such meretricious acts as those which have been noticed, and on which it would be a dereliction of duty not to animadvert. By careful investigation of the animal structure of the dead, not by mangling the living, they have extended the sphere of useful knowledge, and gained for themselves and their country an imperishable fame; a fame neither tarnished by the bloody sacrifice, nor desecrated by the cries and agonies of unoffending creatures; but honored and exalted by genuine science, and approved by the voice of that humanity whose sufferings it is the office of anatomical skill to allay. Sydenham has well said, "I esteem any progress in that kind of knowledge, (how small soever it be,) though it teach no more than the cure of the toothache, or of corns upon the feet, to be of more value than the pomp of nice speculations."

Innumerable experiments have been made on the brains of animals; in the infamy of which the Edinburgh schools of anatomy are entitled to an ample portion. The Earl of Carnarvon, president of the Society for the Prevention of Cruelty to Animals, merits the eulogy of every friend of

humanity, for having at the annual meeting, 1837, brought the subject before the public in an eloquent address, worthy that presidency which he holds. After expressing a just detestation of the practice of dissecting living animals, he asks, "What will you say of that man who keeps a dog, not for hours, but for days under the torture of the dissecting knife, until the spectator, grown callous to suffering, becomes as savage as the operator himself? What will you say to him who could calmly for days prolong atrocities and sufferings, which no Christian eye can witness without horror, no Christian lip describe but in the most unmeasured language of indignation? I will state still further. What will a Christian audience say, when they hear that the revolting fact was perpetrated and recorded in the city of Edinburgh? That an iron was heated, and then forced into the brain of the unfortunate animal, which with fiendish skill was kept alive for the space of sixteen days. (*Cries of shame.*) By whom was this atrocity perpetrated? By men who pride themselves on their science and their civilization, but who, in fact, are more benighted in point of civilization and Christianity than the benighted savages of Scythia. Will you be able to restrain your indignation then, when you are calmly told that it is better to leave such matters to the "*discretion*" of individuals? In other cases, the law of outraged morals steps in to protect and avenge; but against these cases, offensive to the light, outraging decency, repugnant to generous sympathy and to the Christian faith, the law deals not its thunders. The young and inexperienced who are attracted to these charnel-houses, where horrors not to be described are permitted under the name of science, must in time have all feelings of compassion for suffering entirely obliterated."

The utter *inutility* of such experiments as the noble earl reprobates, independently of their atrocity, should be a valid reason, with all men of sense, against their performance. They lead to no useful conclusion; they are often deceptive, often contradictory. Dr. Elliotson, speaking of cerebral mutilations, says that "attempts to mutilate artificially are not calculated to afford much information. Brutes can generally give no opportunity of minutely observing what

mental change has been produced by the removal. * * When various portions of brain are removed, how can any inference be drawn, during the short existence of the poor animal, as to the state of its various faculties and inclinations? * * It is difficult, if not generally impossible, to remove one cerebral organ entirely and alone. Other parts of the encephalon, &c., are almost certain to be injured; and if others should not be injured, they may be influenced by the extension of the irritation from the injury, and by sympathy with the injured parts; just, for example, as we see epilepsy from exciting causes in every part of the encephalon, and from exciting causes even in distant organs; amaurosis is frequently induced by wounds of the supra-orbital nerve, sometimes by wounds of the infra-orbital nerve, and of the *portio dura*. M. Fleurens declares that in cutting the semi-circular canals, in which acoustic nerves only are spread, peculiar motions occurred. If the horizontal canal on each side was divided, horizontal movements of the head took place from side to side, and rotation of the whole body. Division of the inferior vertical canals on each side produced vertical movements of the head, and caused the animal to lie on its back. Division of the superior vertical canals caused vertical movements of the head, but the animal lay forwards. The direction of the inferior vertical canal is backwards, and of the superior forwards. If all the canals were divided, all sorts of violent motions took place." Our learned physiologist proceeds to show that the injury of different portions of the same organ may have the same effect. "We may have blindness from wounding the optic nerves, the *tractus optici*, or the *corpora quadrigemina*." Hence, he observes, "the contradictory and strange observations and inferences of most experimenters on the brain of living brutes. The same effects, moreover, do not occur in the same experiments upon different species of animals. The observation of nature's own mutilation in brutes which have no development of parts is therefore preferable, and next to this comes the observation of morbid changes in different parts. M. Relando says that he made innumerable experiments upon goats, lambs, pigs, deer, dogs, cats, and guinea-pigs, to ascertain the results of the lesion of the tu-

bercles and parts near the *optic thalami*, but rarely obtained the results."—*Note*, p. 426. Of mutilations by nature the Doctor gives instances, which he says "are conclusive, and render all vivisections on this point unnecessary." He quotes a case from the works of Magendie, the arch-vivisector himself, in proof of his assertion: "A girl lived to the age of eleven years with the use of her senses, and with voluntary motion, weak, it is true, but sufficient for her wants, and even for progression. After death no cerebellum, no mesocephalon could be found." MAGENDIE, *Precis*. tom. i. p. 414, *and Journal*. tom. xi. "Here," says Dr. Elliotson, "was one of nature's own mutilations, without mechanical injury, or disturbance of other parts; and with patience till it occurred, a multitude of innocent animals would have escaped cruel and disgusting vivisections; and an attempt would not have been made to prove that the cerebellum was necessary to motion or secretion, or to prevent involuntary motion backwards."

The curious reader is referred to the work from which these quotations are taken, for much more information on this subject. Enough, it is presumed, has been said to expose the ineffable cruelty and generally total uselessness of dissecting living animals, and to fire the breast of every friend of virtue with indignation against the abominable practice. Let us hope that it will soon cease to be patronized by every one who wishes to merit and obtain the rewards of an honorable profession. Now that it has been ascertained by the experiments of John Hunter, that "birds can breathe through an opening in the thigh bone, the shoulder bone, and the cells of the belly after the wind-pipe was completely tied up:" since the action of the abdominal muscles in the lungs of living frogs has been witnessed; since Spallanzani, in prosecution of his experiments on the nature of reproduction, has dissected above two thousand of these animals, and blunted needles and lancets innumerable by forcing them down the throats of turkies and other fowls, to prove the strength of the grinding power of the gizzard; since Dr. Brachet has found that the respiration of cats can be continued or made to cease artificially after the division of the spinal cord, and M. Bourdon has shown that it is im-

possible for poor brutes either to leap or swim, if a tube be inserted into a wound made in the trachea; since Swammerdam, and his rival De Graef, learned, by flagitious proofs, that certain unmentionable phenomena in the animal economy are produced by true blood, *Arterious*, and not spirit or flatulency; since the great "Canicide," "by sticking pins in the chorda oblongata of pigeons, proved that the birds thus ornamented would walk and fly backwards for above a month;" since the carotid arteries of sheep and foxes have been cut in sufficient number to see how nature renovates or regenerates the tubes and the circulation; and since it has been proved that a fox will not become a spaniel, nor a spaniel a fox, by the mutual transfusion of their blood: an experiment of the redoubtable Magendie, as one of his pupils informed the author—let us deprecate the repetition of these and all similar cruelties. To men of true science they can yield no gratification, nor bring any increase of really useful knowledge. Any man possessed of common understanding, though altogether ignorant of anatomy, might justly suppose that operations performed on the organs of living animals, could never answer the purpose of revealing to us the proper functions of those organs, in their natural healthy state. A beast or bird tied or nailed down to a dissecting table, and cut open by a knife, mutilated by a saw, or cauterized with a red-hot iron; its nerves and sinews stretched by pincers, and the whole put into such dreadful torture as to draw from it lamentable cries, is not in a fit state to make revelations to the eye of science. An injury sustained by a single wheel: nay, in a single tooth of a wheel in a chronometer, or any other delicately constructed machine, deranges its whole movements. If a screw be loose in the most potent enginery, it turns all to confusion. A single string, if drawn too tight, or if it be too much relaxed in a musical instrument, takes away its power of discoursing such "eloquent music" as pleases the ear of a skilful musician. Much more may we suppose, that the derangment of a single wheel in the animal machine, or the unnatural tension or relaxation of a single chord, in the "harp of a thousand strings," must disorder the whole of its economy. The torture does not always elicit a true confes-

sion. We may witness the contortions without hearing the inspiration of the sibyl. The responses of a creature on the rack to the interrogatories of the inquisitor, must be always dark and disjointed, deceptive and unsatisfactory.*

If we can imagine some unfortunate animal, when brought to the dissecting-room for experiment, to be for the occasion endowed with speech and "sanctity of reason," we might farther imagine it to address the sacrificer in terms like these: "Your power, I admit, is not to be resisted. The Almighty has given you dominion over me; but it is a dominion of justice and mercy, not of cruelty and wrong. If you require such services as I can perform, I am ready to yield them: if my life be necessary or advantageous to you, take it. If the dissection of my lifeless members will extend your knowledge of the divine wisdom, or in any mode contribute to the improvement of the medical and surgical art, and the consequent benefit of man, do with them whatever your ingenuity suggests to accomplish so laudable a design. But spare me the excruciating tortures that must be inflicted, by laying open those parts of my frame which nature never designed to be exposed to man's inspection, while they are yet palpitating with life. Transgress not the legitimate bounds of inquiry, nor hope to add to your honor and reputation, or to extend the sphere of science, by means which nature abhors. Suppose yourself, for a moment, in the power of a being as much superior to you, as you to me, and that he was preparing to subject you to the same process of investigation as you have prepared for me, what would be your feelings? You are filled with indignation and horror when you read of the cruelties sometimes practiced by men on each other; for you think them more sensibly alive to pain than other creatures, and your sympathies are more strongly excited for beings like yourself. Notwithstanding, it is happy for them that you dare not dissect living men with impunity, since the step from one degree of wickedness to another is not always difficult. But are

*It was long since remarked by Aristotle, that men when subjected to torture, will speak falsehood in preference to truth, if it serve their purpose better. Torture, therefore, is no test of truth. See his *Rhetoric*, lib. i, c. 15.

not the inferior creatures, as you call them, capable of acute sensation? Are they not composed of the same materials as man? Do they not exhibit as much delicacy of construction; are not their muscles as tender; their nerves as finely strung? And do not their writhings and contortions under the knife and the saw, the hammer and chisel, their lamentable cries, and groans, and shrieks, which send a shudder even to the demonstrator's iron heart, declare their sufferings in language sufficiently intelligible? You hope to make some new discovery, forsooth, and you care not at what expense. Egregious vanity! You would penetrate into the secret things which belong only to Jehovah; you would force your way into the Holy of Holies, which the law of God prohibits. Beware lest you perish in the attempt. But how are you qualified for this ambitious enterprise? Have you learned all that has been already taught? Have you so thoroughly investigated and found all that the inanimate frame is capable of unfolding, that nothing remains to be achieved; and to gratify a preposterous ambition, and a criminal curiosity, must you commence a course of diabolical experiments on living creatures, in hope of discovering something new? And suppose this as yet undiscovered something to be found, what will be its real use in the medical profession, and what will atone for the guilt you must incur in prosecuting the inquiry? You are desirous of celebrity. Well, let it be an honest celebrity, and pursue it in such paths as virtue will approve. Never let the genius of evil be your conductor to the temple of fame. Though all the kingdoms of the world and the glory of them, were to be the reward of your falling down and worshiping the enemy of God and man, what would you be profited? You are now preparing to immolate me, by horrible tortures, on the blood-stained altar that he loves: and what will you gain by the sacrifice, but the harrowing reflection of having perpetrated an enormous atrocity, against which I protest, and make my final appeal to heaven?"

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